

Application No. 10/075,683
Amendment Dated October 4, 2004
Reply to Office Action of July 14, 2004

REMARKS/ARGUMENTS

WITHDRAWAL OF REJECTIONS UNDER 35 U.S.C. § 112:

It is first noted and appreciated that the Examiner withdrew the rejections under 35 U.S.C. § 112.

REJECTIONS UNDER 35 U.S.C. § 103:

The Examiner next rejected claims 1-20, 25-26, 30, 32-33 and 35 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,221,191 (Davis et al.) or U.S. Patent No. 5,637,366 (Davis et al.) or EP 0 782 498 (EP '498) in view of U.S. Patent No. 4,405,400 (Petersen-Hoj). The Examiner states that the Davis references and EP '498 each disclose the recited method which includes orienting a polypropylene core and wherein the multi-layer cap layer comprises an amorphous copolyester. The Examiner states that Petersen-Hoj discloses that it is well known in the art to use amorphous PETG copolymers (Lines 28-40, col. 2) to form heat-sealable surface layers for multilayer films. The Examiner states that it would have been obvious to use known, commercially available amorphous copolymers in the cap layer of the Davis et al. references and EP '498 in order to form sealable packaging films. The Examiner goes on to state that one of ordinary skill in the art would have either omitted silicone from or, or alternatively, substituted other known slip or processing aid in the polyester cap layer.

Claim 1, paragraph (a) requires that the core layer formed must comprise a polypropylene film. While Petersen-Hoj teaches use of amorphous PETG copolymers to form heat sealable layers

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for multilayer oriented films, it teaches only structures in which the core of the film is comprised of Polyester. Petersen-Hoj makes no mention whatsoever of films in which the core of the film is comprised of Polypropylene. This distinction is very significant because polypropylene is oriented to much higher stretch ratios than polyester, for example, about 5:1 in the machine direction and about 9:1 in the transverse direction for polypropylene versus about 3:1 in the machine direction and about 3:1 in the transverse direction for polyester. Polypropylene is also oriented in the transverse direction at different temperatures and at different stretching rates (rail settings) than polyester. Because of these differences, stretching a cap layer adhered to a polypropylene core at polypropylene tenter conditions would require a unique and substantially greater challenge than stretching the same cap layer adhered to a polyester core on a polyester tenter.

The Davis et al. references and EP '498 clearly illustrate the stretching problems noted above in their numerous formulation examples (Examples 1, 2A, B&C, 3A&B, etc.) in which the limited polyester cap layer extensibility produces visual defects, seal problems, poor adhesion, and/or frequent web breaks. Davis et al. teach that silicone fluid or another processing aid is needed to achieve uniform stretching of the polyester cap layer. See, for Example, the '366 patent at col. 13, lines 10-17.

In view of Davis et al.'s extensive discussion of stretching issues associated with tentering a polyester layer attached to a polypropylene core, it is clearly not obvious that a multi-layer cap layer comprising a non-crystallizable, amorphous, polyester layer and an adhesive tie-layer could be adhered to a monoaxially oriented polypropylene core and be successfully transverse oriented at

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polypropylene tenter conditions and rail settings without significant stretch related issues, particularly in the absence of silicone or other processing aid. Any *one* of the many stretch related problems discussed in Davis et al. (including visual defects, adhesion problems, uneven polyester thickness, frequent web breaks, etc.) could have rendered the resulting film unusable and valueless.

Second, claim 1 requires, at paragraph (c)(i) that the multilayer cap layer comprises a noncrystallizable, amorphous polyester layer, comprising a sufficient proportion of a non-crystallizable, amorphous polyester to render the polyester layer noncrystallizable. The Examiner states that Petersen-Hoj discloses that it is well known in the art to use amorphous PETG copolymers (lines 28-40, col. 2) to form heat-sealable surface layers for multi-layer films. The Examiner entirely disregarded the claim limitation of "noncrystallizable." The use of the language "cyclohexane modified polyester," "PETG," or "polyester material of predominantly amorphous structure" clearly does not teach or suggest a requirement for the use of a noncrystallizable amorphous polyester layer.

The following is an example of an amorphous polyester layer that is not necessarily crystallizable. As stated in the present specification at page 14, line 17 to page 15, line 4.

Non-crystallizable, amorphous polyesters suitable for use in the invention include those having a glass transition temperature (Tg) in a range of about 131°F (55°C) to about 189°F (87°C) as determined by differential scanning calorimetry. Preferred non-crystallizable, amorphous polyesters include, but are not limited to, a glycolized polyethylene terephthalate (PETG) (such as EASTAR® PETG Copolyester 6763), a cyclohexane dimethanol polyester soaked in diethylene glycol (such as EASTAR® PCTG 5445), and mixtures thereof. Both of the EASTAR® products are commercially-available from Eastman Chemical Co., Kingsport, Tennessee. Other non-crystallizable, amorphous polyesters sold by Eastman

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Chemical Co. also can be used in accordance with the invention. A particularly preferred non-crystallizable, amorphous polyester includes about 97% EASTAR® PETG Copolyester 6763 and about 3% Eastman C0047.

Eastman Chemical company makes a PETG made with cyclohexane dimethanol (CHDM). CHDM modified polyester may or not be crystallizable depending upon the amount of ethylene glycol replaced with CHDM. The use of the term PETG in Petersen-Hoj does teach that a non-crystallizable polyester may be used.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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Please charge or credit our Account
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